



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

cn

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,470	11/02/2001	Clifford C. Hoyt	12259-009001	3699
26161	7590	12/17/2003	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			THOMPSON, TIMOTHY J	
			ART UNIT	PAPER NUMBER
			2873	
DATE MAILED: 12/17/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/053,470

Applicant(s)

HOYT ET AL.

Examiner

Timothy J Thompson

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28-40 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 17, 25, 26 and 41 is/are rejected.
- 7) ☒ Claim(s) 3-16, 18-24, 27 and 42-46 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

**Claims 1, 2, 17, 26, 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Pan(U.S. Patent No. 6,181,846).**

Regarding claim 1, Pan discloses a birefringent element positioned to separate an input optical signal into two spatially separated, orthogonally polarized beams(fig 1, 15); a LC modulator positioned to receive the orthogonally polarized beams and s selectively alter their polarizations(fig 1, 18); a reflective element positioned to reflect the beams back through the LC modulator and the birefringent element(fig 1, 19), wherein the birefringent element recombines orthogonally polarized components of the reflected beams to produce an output optical signal(fig 2B); and a controller coupled to the LC modulator to selectively cause the LC modulator to alter the polarizations of the orthogonally polarized beams, wherein during operation the controller is responsive to a request to variably attenuate the intensity of the output optical signal relative to the intensity of the input optical signal to one of multiple non-zero attenuation settings(col 3, line 44 through col 4 line 40and fig 1, 21, since there is an “on” and “off” state and

Art Unit: 2873

electrical terminals this switch/attenuator inherently has a controller which provided an electrical interface for turning the liquid crystal on and off).

Regarding claim 2, Pan discloses an input port positioned to direct the input optical signal into the birefringent element(fig 6, 32) and an output port positioned to receive the output optical signal from the birefringent element(fig 6, 33).

Regarding claim 17, Pan discloses wherein the reflective element is a mirror oriented to receive the beams at a non-normal angle(fig 3B).

Regarding claim 26, Pan discloses additional input ports each directing an additional input optical signal into the birefringent element and on through the LC modulator and the reflective element, and additional output ports each positioned to receive an additional output optical signal from the birefringent element, wherein each additional output optical signal corresponds to one of the additional input optical signals after it is reflected back through the LC modulator and the birefringent element by the reflective element(fig 13, 10, 11).

Regarding claim 41, Pan discloses separating the input optical signal into two spatially separated, orthogonally polarized beams by directing it through a birefringent element; selectively altering the polarizations of the orthogonally polarized beams based on a desired attenuation setting by directing the orthogonally polarized beams through a LC modulator; and reflecting the beams back through the LC modulator and the birefringent element, wherein the birefringent element recombines orthogonally polarized components of the reflected beams to produce an output optical signal(fig 2B).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pan(U.S. Patent No. 6,181,846) as applied to claim1 above.**

Regarding claim 25, Pan as detailed in claim rejection 1 above, does not disclose the LC modulator provides a tunable retardance spanning a range of less than 450 nm for a single pass. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use an LC modulator with a tunable retardance spanning a range of less than 450 nm for a single pass, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

***Allowable Subject Matter***

Claims 3-16, 18-24, 27, 42-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2873

Claims 28-40 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art taken either singularity or in combination fails to anticipate or fairly suggest the limitations of the independent claim, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claim 28, with the allowable feature being a polarizer between the LC modulator and the reflective element. Therefore claims 28-40 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Thompson whose telephone number is (703) 305-0881. If the examiner can not be reached his supervisor, Georgia Epps, can be reached on (703) 308-4883.

T.J.T.

12/9/03

A handwritten signature in black ink, appearing to read "Tim Thompson", is written over the date and the examiner's initials.